

## Remotely Controlled Mixers for LMM Colloid Samples, Phase II

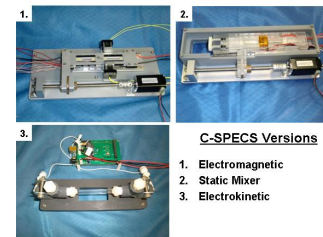
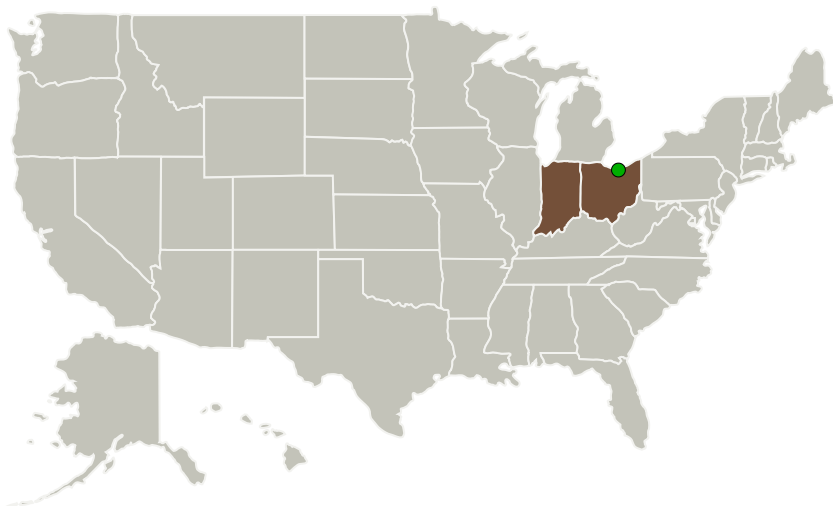
Completed Technology Project (2012 - 2015)



## Project Introduction

The U.S. portion of the International Space Station (ISS), which has been designated by Congress as a National Laboratory, holds great potential for a broad spectrum of researchers who are eager to take advantage of its unique scientific research facilities. The Light Microscopy Module (LMM), which was developed and is being managed by the NASA Glenn Research Center (GRC), is one such facility currently operating and producing fascinating results on ISS. LMM will yield even more astonishing results with the addition of enhancing subsystems. Techshot is currently developing one such subsystem, the LMM-Dynamic Stage (LMM-DS), which will satisfy a host of new experiments proposed for LMM. However, GRC has many more researchers awaiting the ultimate enhancing subsystems for conducting colloid science experiments in the LMM that could lead to new advanced materials with significant commercial potential. Capitalizing on Techshot's rapid progress with the LMM-DS, the company's vast array of mixing and separations technologies, and its extensive experience with microfluidic systems, a series of Colloid SPEcialty Cell Systems (C-SPECS) will be developed by Techshot for use in the LMM-DS. These innovative low-volume mixing devices will enable uniform particle density and remotely controlled repetition of LMM colloid experiments. In addition C-SPECS will minimize crew time, as well as avert the need for multiple, costly colloid samples that are expended after only one examination. C-SPECS are vital analytical microgravity research technologies that will greatly enhance the capability of the LMM, thereby enabling ISS to become even more effective as a national laboratory.

## Primary U.S. Work Locations and Key Partners



Remotely Controlled Mixers for LMM Colloid Samples Project Image

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

## Remotely Controlled Mixers for LMM Colloid Samples, Phase II



Completed Technology Project (2012 - 2015)

Organizations Performing Work	Role	Type	Location
Techshot, Inc.	Lead Organization	Industry	Greenville, Indiana
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

## Primary U.S. Work Locations

Indiana	Ohio
---------	------

## Project Transitions

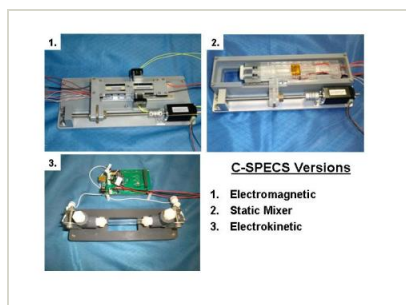
▶ **December 2012:** Project Start

✓ **February 2015:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138460>)

## Images



## Project Image

Remotely Controlled Mixers for LMM Colloid Samples Project Image  
(<https://techport.nasa.gov/image/130382>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

Techshot, Inc.

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

Carlos Torrez

## Principal Investigator:

Michael Kurk

## Co-Investigator:

Michael Kurk

## Remotely Controlled Mixers for LMM Colloid Samples, Phase II

Completed Technology Project (2012 - 2015)



### Technology Maturity (TRL)

Start: **4**  
Current: **6**  
Estimated End: **6**



### Technology Areas

#### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.1 Detectors and Focal Planes

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System